

REMARKS

Status of the Claims

Claims 30-58 are pending. Claims 30 and 56 are amended. Support for the amendment to claim 30 can be found throughout the Specification. No new matter is added in the above amendment.

Claims 54, 55, 57 and 58 are objected to for being dependent on a rejected claim, but are otherwise allowable.

Specification Objection

The objection to the Specification for the Abstract not being on a separate sheet of paper is noted but moot in view of the attached Abstract. The attached Abstract is on a separate sheet of paper.

Issues Under 35 U.S.C. § 103

Claims 30-33, 42-44, 46-49, and 51 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over Pawlak in view of Hatagi et al. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

The primary reference, Pawlak et al., is well-discussed in the record. They disclose an arrangement for water cooling a transport roller for a roller-hearth kiln, having a cylindrical base body (1) and a cooling water conduit (3) running through the base body. A shaft (5) is fixed to the base body, the shaft being configured to receive the water input end of the conduit, and a central bore (7) for feeding the cooling water into the conduit. The shaft in Pawlak et al. (5) is rotationally connected to a water distributing head (11) such that the cooling water is fed from a water feed pipe (12) positioned within the head into the central bore. The water feed pipe (12) has an elbow portion.

The Office Action acknowledges that the primary reference fails to disclose the claimed feature of the cooling medium line remaining stationary when in use. Claim 30 has been amended to clarify the feature of the present invention wherein the elongate cooling medium line conduit and elbow portion remain stationery as the housing rotates.

However, the Office Action now alleges that one of ordinary skill in the art would be motivated to pick and choose parts of the secondary reference, Hatagi et al. and combine them with the primary reference to allegedly arrive at the present claims.

Hatagi et al. disclose a hollow roll having a source of cooling liquid 14 connected to the hollow roll shaft for passing liquid therethrough. Applicant agrees with the Examiner in this regard as referring to the drawings the source of cooling liquid 14 is clearly remote from the roll and will not move even when the rolling unit is rotated. However, Applicant respectfully submits that one of ordinary skill in the art at the time the invention was made would not be motivated to substitute Pawlak's distributing head 11 and line 13 for Hatagi's cooling unit 14. The Office Action characterizes this substitution as being a "simple substitution of one known

element for another [to obtain] predictable results including removing heat in a roll in a simple and inexpensive manner.” Applicant respectfully submits that this position is not correct.

One of ordinary skill in the art would understand that removal of the water distributing head and line 13 from Pawlaks arrangement and replacing with the cooling unit 14 of Hatagi would not result in an arrangement according to the invention as defined in claim 30. Removal of the cooling head 11 of Pawlak would result in an arrangement whereby cooling liquid is fed into the roll with no specific outlet - the return liquid would simply fall out of the end of the drain channels 9 in the shaft 5. Additionally, removing the water distributing head 11 and line 13 and instead connecting the source of cooling liquid 14 of Hatagi with the central bore 7 of Pawlak would mean that the source of cooling liquid 14 of Hatagi would rotate along with the central bore which is clearly impractical and undesirable.

Applicant submits that there is no reason, from either a practical sense and a technical sense, why one of ordinary skill in the art would attempt to remove the water distributing head of Pawlak and replace with either the source of cooling liquid 14 of Hatagi as suggested in the Office Action. This would result in components such as the elbow being removed. Hatagi describes an arrangement whereby the roll sleeve, roll body coupling member and roll shaft are all tightly connected together and all rotate relative to the line that connects the source of cooling liquid to the roll. This arrangement is clearly remote from the present invention and taken either alone or in combination with Pawlak has absolutely no relevance to the present invention as defined in claim 30.

As previously submitted, the arrangement as defined in Pawlak appears to be the closest prior art, but represents a complex, convoluted system in that, for example, the arrangement of

Pawlak comprises an additional component (i.e. the shaft) which sits between the water distributing head and the roll. This feature of Pawlak makes the arrangement more complicated and more expensive to manufacture and install when compared to the present invention, which is contained within one integrated device. Nothing in the cited prior art suggests an integrated solution or its advantages. Furthermore, the prior art provision of a rotating bore 7 causes interference and turbulence within the coolant flow. The present invention provides an arrangement whereby coolant may flow turbulence free through the conduit 24 thereby increasing flow and improving cooling. Additionally, as stated above, a feature of the present invention is a cooling medium line is an elongate conduit which extends into the roll and in combination with the elbow portion remains stationary as the housing rotates. This feature is not rendered obvious by the unworkable combination as suggested in the Office Action.

Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Claims 34-35 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over Pawlak in view of Hatagi et al., further in view of Timm (US '135) or Ives (US '207). This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

However, in view of above, these rejections are moot. The claims rejected herein are all dependent from (either directly or indirectly), and incorporate all the features of, claims that are free from this rejection and should be allowable as discussed above.

The Federal Circuit has clarified that if an independent claim is non-obvious under 35 U.S.C. §103, then any claim depending therefrom is non-obvious. In re Fine, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Claims 36-41 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over Pawlak in view of Hatagi et al., further in view of Jarrett (GB '386). This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

However, in view of above, these rejections are moot. The claims rejected herein are all dependent from (either directly or indirectly), and incorporate all the features of, claims that are free from this rejection and should be allowable as discussed above.

The Federal Circuit has clarified that if an independent claim is non-obvious under 35 U.S.C. §103, then any claim depending therefrom is non-obvious. In re Fine, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Claims 50 and 52 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over Pawlak in view of Hatagi et al. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

However, in view of above, these rejections are moot. The claims rejected herein are all dependent from (either directly or indirectly), and incorporate all the features of, claims that are free from this rejection and should be allowable as discussed above.

The Federal Circuit has clarified that if an independent claim is non-obvious under 35 U.S.C. §103, then any claim depending therefrom is non-obvious. In re Fine, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Claim 56 stands rejected under 35 U.S.C. § 103 as allegedly being obvious over Pawlak in view of Hatagi et al., further in view of Ostertag (US '739). This rejection is respectfully traversed. Additionally, claim 56 stands rejected under 35 U.S.C. § 103 as allegedly being obvious over Ostertag in view of Pawlak or in view of Hatagi et al. These rejections are respectfully traversed. Reconsideration and withdrawal thereof are requested.

The Pawlak and Hatagi references are discussed in detail above. The Ostertag reference is relied upon, as stated in the Office Action, as disclosing a “pressure release means for releasing internal pressure in the shaft when the internal pressure substantially exceeds a threshold level.” See page 5 of the Office Action. Thus, it is clear that the Ostertag reference is not relied upon as curing the deficiencies of both Pawlak and Hatagi.

Accordingly, Applicant respectfully requests that this rejection be withdrawn.

From the foregoing, further and favorable reconsideration in the form of a Notice of Allowability is requested, and such action is believed to be in order.

If there are any questions concerning this amendment, or the application in general, the Examiner is respectfully urged to telephone the undersigned at the number listed below.

Respectfully submitted,



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